WORK-RELATED BURN SURVEILLANCE IN UTAH, 2002

November 29, 2003
Environmental Epidemiology Program
Office of Epidemiology
Utah Department of Health

EXECUTIVE SUMMARY

Work-related burns are a leading cause of occupational injury in the United States. Approximately 1.4 million persons in the United States sustain burns each year, of which approximately 54,000-108,000 are hospitalized. Work-related burns account for 20-25% of all serious burns, and approximately 6% of all work-related thermal burns occurred among adolescent workers aged 16-19 years. This report focuses on calendar year 2002 data. Additionally, data from previous calendar years 1998-2001 are included in the summary tables and are presented in the appendix to this report.

This project is funded by a grant from the Centers of Disease Control and Prevention (CDC) and National Institute for Occupational Safety and Health (NIOSH). The Environmental Epidemiology Program, in which the grant is coordinated, continues to maintain the registry of work-related burn cases in Utah, and uses the information from cases to develop and implement intervention activities, help ensure that affected workers are identified and receive the appropriate medical and environmental follow-up, and ensure that appropriate prevention activities are directed toward targeted industries.

Hospital discharge data was received by the Utah Department of Health's, Office of Epidemiology under the authority of the Utah Injury Reporting Rule (R386-703). The Injury Reporting Rule requires that injuries be reported by hospitals to the Office of Epidemiology. Patient records containing one or more International Codes of Diagnosis, 9th Revision, Clinical Methods, (ICD-9) codes attributed to burns were then evaluated to determine if the burn injury was work-related.

The EEP examined the incidence of hospital admissions attributed to work-related burns that occurred in the state of Utah in 2002. During 2002, hospitals throughout Utah reported 1293 hospital admissions that were attributed to burns. Of these reported burn-related injuries, 293 cases were work-related and 804 were non-work-related. The incidence of work-related burns in Utah for 2002 is 26.4 (Male: 34.5; Female 16.6). Incidence rates (crude) were calculated *per 100,000 population* and are based on Utah's 2002 estimated total workforce population.

The incidence for work-related burns is significantly higher among males than females, and relative to age groups, persons 15-19 years of age demonstrated the highest incidence of work-related burn injuries. Salt Lake County accounted for 44 percent of the total workforce population and was the largest contributor to work-related burn injuries accounting for just over 33% of the burns. Tuesday, Wednesday and Thursday tied for the most likely day for a work-related injury to occur, and July and August were the most likely months for an injury. Eating places accounted for most of the work-related burns.

In Utah, 3341 burns (thermal, chemical and electrical) have been reported to the Utah Department of Health Work-Related Burn Injury Program comprising calendar years 1998 through 2002. Approximately 21% (701) of all burn cases reported from hospital discharge data for calendar years 1998 through 2002 were work-related. Of the total 701 work-related burn cases reported in Utah for 1998-2002, 36.3% occurred among workers aged 15-24 years old, and 63.7% occurred among workers 25 years and older. As a note, the results of this study do not include data from outpatient health clinics and doctors offices, as these health care facilities are not required to report to the Utah Department of Health.

WORK-RELATED BURN SURVEILLANCE IN UTAH, 2002

November 29, 2003
Environmental Epidemiology Program
Office of Epidemiology
Utah Department of Health

INTRODUCTION

Work-related burns are the leading cause of injury in the United States (CDC, 1993). Approximately 1.4 million persons in the United States sustain burns each year, of which approximately 54,000 to 84,000 are hospitalized.

In October of 1997, the Environmental Epidemiology Program (EEP) established a registry of work-related burn cases in Utah. This project is funded by a grant from the Centers of Disease Control and Prevention (CDC) and National Institute for Occupational Safety and Health (NIOSH). The EEP maintains the registry of work-related burn cases in Utah, and uses the information from cases to develop and implement intervention activities. Interventions include education and consultation to employers where burn hazards are present, education for cases and workers, broader industry-wide studies, and research.

METHODS

Hospital discharge data was received from hospitals by the Utah Department of Health's, Bureau of Epidemiology under the authority of the Utah Injury Reporting Rule (R386-703). The Injury Reporting Rule requires that injuries be reported by hospitals to the Bureau of Epidemiology. Patient records containing one or more International Codes of Diagnosis, 9th Revision, Clinical Methods, (ICD-9) codes attributed to burns were then evaluated to determine if the burn injury was work- related. Medical records of each work-related case were abstracted to gather risk factor information such as personal identifiers, days hospitalized, employer, insurance, severity, and cause of injury regarding the work-related injury. The work-related burn injury data was then entered into the work-related Burn Injury Registry using EpiInfo 2002 software.

Extraction of tabular data for all burns by county, age group, and gender was performed using the EpiInfo 2002 software. All rates presented are crude rates calculated *per 100,000 population* unless otherwise specified and are based on Utah's 2002 estimated workforce population. Workforce population estimates for age groups and gender for 2002 were obtained from the Utah Department of Workforce Services, Division of Workforce Information and Payment Services (UDOWS, 2001).

Surveys were mailed to those cases identified as work-related to obtain more detailed risk factor and demographic information. Surveys were also mailed to employers when permission

was granted by the cases. All survey data and data obtained from medical abstractions are entered onto EpiInfo 2002 software for analysis. A bias in the analysis of data may be present as not all surveys are returned by cases. Additionally, medical records which are extracted do not always contain information for all categories desired.

RESULTS

There were 293 work-related burns reported in Utah during 2002. The incidence rate for work-related burns was significantly higher among males (34.5) than females (16.6). The incidence for both males and females was 26.4 per 100,000 (workforce) population in Utah. Of the 293 work-related burns reported, males accounted for 72 percent of the injuries in contrast to females who accounted for 28 percent of the injuries (Table 1, Appendix).

Relative to age groups, workers who were 25 - 65+ years of age accounted for 64 percent of all work-related burns (Table 2). Thirty-Six percent of the work-related burns occurred among workers less than 25 years of age. These numbers are consistent with the analysis of calendar year 2002 data for these age groups.

Relative to counties, 33.1 percent of all the work-related burns occurred in Salt Lake County. The counties demonstrating the next highest percent occurrence of work-related burns include Davis (13.3%), Utah (11.6%), and Weber (8.5%) (Table 3). Salt Lake County accounted for 44 percent of Utah's workforce population, while 28% of the workforce population was accounted for in Utah (15.5.0%), Davis (11.1%), and Uintah (1.0%) (Table 4). The remaining counties accounted for 32 percent of the work-related burn injuries and 28 percent of the workforce population, respectively. The unusually high number of burns occurring in Uintah county with only 1% of the workforce population were due to a high number of work-related burns occurring in the petroleum industry.

Data from the 2002 case questionnaires and medical abstracts completed indicate a wide variety of industries in which work-related burns occur. As noted from 2002 abstraction records and returned surveys, 28.6% of work-related burns occurred in Eating Places (SIC code 5812) as compared to 32.6% in 2001. The majority of cases were related to contact with hot food, grease, or beverage, or contact with the equipment used to heat food and/or beverages. The second highest percent of work-related burns (3.6%) during 2002 occurred in the Hotel/Motel Industry (SIC 7011). The third highest (2.7%) occurred at grocery stores (SIC 5411). The balance of the work-related burns occurred in various industries at one to four occurrences each (<2.6% each). A more detailed account is tabulated in Appendix B from the questionnaires returned and abstraction of medical records for work-related burn injuries surveyed for 2002.

In 2002, 75% of those surveyed indicated that they were employed full-time when burned. Twenty five percent were part-time employees. Ten percent reported that they periodically perform the task associated with the injury, while 23% reported that they performed the task associated with the injury on a daily basis. July and August were the months most likely for a work-related burn to occur (13%), and Sunday was the least likely day (13%). Forty

percent of the reported work-related burns occurred between the hours of 7:00 a.m. and 3:00 p.m., the traditional day shift. Twenty-six percent of the work-related burn cases occurred to those who had some high school or had completed high school only, as compared to 9% who had completed high school and went on to complete two years of college. Eight percent of the burn cases were reported to be college graduates. Seventy-eight percent of the work-related burns were from a thermal source, 8% were from an electrical source, and 14% were from a chemical source. Work-related burn accidents involving only one person were reported 99% of the time. Sixty-eight percent of the cases reported that in their opinion, the burn accident could have been prevented, and 79% stated that they were aware of a written set of safety rules provided by the employer (See Case Questionnaire Summary Report in Appendix).

DISCUSSION

Surveillance of work-related injuries involves the enumeration, description and determinants of injuries in workplace populations. Surveillance is the scientific basis for prevention. Successful surveillance strategies depend on consistent case definitions and ascertainment strategies as well as standardized and comprehensive reporting mechanisms (Peek-Asa, Schaffer, et al, 1998). Without accurate and comprehensive case ascertainment, surveillance will underestimate the true number of events, which may lead to misidentification of high risk areas and activities associated with work-related burns.

Burn injuries represent a major complaint for patients presenting to emergency rooms in the US, with over a million visits annually. While the majority of burn injuries are not life-threatening, major burns have a significant risk of mortality and morbidity. Less significant burns still carry a real risk of scar formation and compromise of function. Appropriate intervention activities to reduce the number of work-related burns can reduce untold mental and physical trauma to Utah workers by reducing the number of work-related burn injuries.

Work-related burns can be divided into three causal categories: thermal, chemical, and electrical. Thermal burns are caused by contact with hot objects, flames, or steam. Chemical burns are caused by contact with acids or bases. Electrical burns are infrequent, but can cause major damage. Electrons flowing abnormally through the body of a person produce injury and/or death by depolarizing muscles and nerves, by initiating abnormal electrical rhythms in the heart and brain, and by producing electrical burns by heating and by poration of the cellular membranes. The skin is the largest organ of the body and serves multiple functions essential to the survival of the individual. It plays a major role in thermal regulation and prevents fluid loss from evaporation. It is a barrier against infection and contains many of the sensory receptors that provide the nervous system with information about the environment. In case of a major burn, these functions are compromised. In Utah in 2002, 78% of the burns reported to the work-related burn surveillance program were thermally caused, 14% were caused by contact with a chemical, and 8% were caused by contact with an electrical source.

This statewide surveillance project is the only system in Utah dedicated to collecting

data and tracking injuries associated with work-related burns. The current focus of this project is to maintain the registry of work-related burn cases in Utah and to use the information from cases to develop and implement intervention activities. These activities include education and consultation with employers where burn hazards are present, education for work-related cases and workers in general, and broader industry-wide studies and research. During calendar year 2002, the Work-Related Burn Project solicited the assistance of local health departments to discuss work-related burns and distribute educational materials during food handler permit classes and/or food establishment permit renewals. Survey results returned to the Utah Department of Health from work-related burn cases indicate that 68% of the accidents were preventable in the opinion of the injured person, and 23% of those burned performed the task related to the burn on a daily basis. These statistics indicate that there is a need for continuing a focused work-related burn intervention strategy in the state.

Work-related burns are a leading cause of occupational injury in the United States. A substantial proportion of these burns occur among restaurant workers. Results of data collected by the Utah work-related burn surveillance project in 2002 and previous years, indicate that the highest percent of work-related burns in Utah occurred in Eating Places (SIC code 5812). The majority of cases were related to contact with hot food or beverage, or contact with the equipment/materials (grease) used to cook food and/or beverages.

This evaluation observed that the sex-specific incidence rate for males was almost twice the rate of females (Table 1) although U.S. Bureau of Labor statistics indicate that women account for only 45% of the Utah workforce population.

CONCLUSION

During 2002, the Work-Related Burn Surveillance Project collected information on 293 work related burn injuries out of a total of 1293 burns reported through hospital discharge reports. Analysis of the burn data suggests that there is a need for a focused work-related burn prevention program as 68% of those injured suggest that the burn accident could have been prevented, and 23% indicate that they were injured performing a task on which they work daily.

One of the goals of the Work-Related Burn Surveillance Program is to identify high risk populations in the State of Utah, and to develop intervention strategies to reduce the number and frequency of work-related burns. From the data collected in calendar years 1998 through 2002, certain high risk industries have emerged as prime candidates for targeted intervention activities. A significant portion of the reported work-related burns continue to come from all types of eating establishments as indicated by surveillance data. As previously noted, local health departments during food handler permit training and/or food establishment permit renewal, have begun to discuss work-related burn prevention and distribute educational materials to workers

entering this industry. The work-related burn program in conjunction with the University of Utah Intermountain Burn Center have also begun focusing education effort on high risk industries by dispersing burn education packets. Additional intervention approaches need to be developed in the future to reduce the number of work-related burns occurring in this industry. Obtaining the assistance of local health departments in this goal is the first step of coordinating both government and private industry to jointly work towards reducing the number of workers burned in the state of Utah.

REFERENCES

CDC, Centers for Disease Control and Prevention, MMWR. *Occupational Burns Among Restaurant Workers-Colorado and Minnesota.* Vol. 42 No. 37, July 24, 1993.

LCU, Labor Commission of Utah, Emlpoyer's First Report of Injury. Industrial Commission of Utah Statistics, 11/94 - 7/97.

Peek-Asa, C., Schaffer, K. B., Kraus, J., and Howard, J. (1998). Surveillance of Non-Fatal Workplace Assault Injuries, Using Police and Employers' Reports. *Journal of Occupational and Environmental Medicine*. Vol. 40, NO. 8: 707-713.

UDOWS, Utah Department of Workforce Services, Division of Workforce information and Payment Services (1997). *Total Employment in Utah by County.*

Alson, Roy, Ph.D., Wright, Ronald K., MD.,JD.,Cox, Robert, MD., PhD., Thermal Burns, Chemical Burns, Electric Injuries, MEDLINE Search, World Wide Web.

Appendix A

Summary of 1998 -- 2002 Burn Injury Data

Table1. Crude incidence rates of work-related burn cases, total number of work-related burns, total number of burns, and percent of total number of work-related burns in Utah by sex reported for the time period January 1, 1998 - December 31, 2002.

BURN INJURIES IN UTAH BY SEX, 1998 -2002

SEX	TOTAL NUMBER OF BURNS					TOTAL NUMBER OF WORK-RELATED BURNS				
	1998	1999	2000	2001	2002	1998	1999	2000	2001	2002
FEMALE	107	136	159	411	546	10	13	14	64	83
MALE	163	187	291	594	747	47	50	73	137	210
BOTH SEXES	270	323	450	1005	1293	57	63	87	201	293

SEX	% OF BURNS THAT ARE WORK-RELATED					^INCIDENCE OF WORK-RELATED BURNS				
	1998	1999	2000	2001	2002	1998	1999	2000	2001	2002
FEMALE	18	21	16	32	28	1.8	2.2	2.9	13.3	16.6
MALE	82	79	84	68	72	9.1	9.2	12.4	23.4	34.5
BOTH SEXES	100	100	100	100	100	5.4	5.8	8.1	18.8	26.4

^Crude incidence rates are calculated per 100,000 population based on Utah's 1998, 1999, 2000, 2001, and 2002 *total workforce* population.

Data Source: Burn injury data was obtained from the Utah Department of Health's, Bureau of Epidemiology from Databases of Hospital Admissions and Discharge Data under the authority of the Utah Injury Reporting Rule (R386-703)

Table 2. Total number of burns and total number of work-related burns in Utah by age-specific groups for the time period January 1, 1998 - December 31, 2002.

BURN INJURIES IN UTAH BY AGE GROUPS, 1998-2002

AGE GROUP	TOTAL NUMBER OF BURNS					TOTAL NUMBER OF WORK-RELATED BURNS				
	1998	1999	2000	2001	2002	1998	1999	2000	2001	2002
0 - 14	60	72	122	286	387	0	0	0	0	0
15 - 19	16	28	58	118	108	3	8	17	41	45
20 - 24	24	26	42	138	143	11	7	15	47	61
25 - 34	44	57	64	160	222	14	17	17	50	75
35 - 44	40	50	55	124	183	15	16	17	33	54
45 - 54	29	39	45	76	135	12	12	16	20	43
55 - 64	15	24	19	42	51	1	3	2	10	13
65 +	42	27	45	61	64	1	0	3	0	2
All Groups	270	323	450	1005	1293	57	63	87	201	293

^Age-specific crude incidence rates are calculated per 100,000 population based on Utah's age-specific *total workforce* population for 1998 - 2002. Data Source: Burn injury data was obtained from the Utah Department of Health's, Bureau of Epidemiology from Databases of Hospital Admissions and Discharge Data under the authority of the Utah Injury Reporting Rule (R386-703).

Table 3. Crude incidence rates of work-related burn cases and percent of total number of work-

related burns in Utah by age-specific groups for the time period January 1, 1998 - December 31, 2002.

BURN INCIDENCE IN UTAH BY AGE GROUPS, 1998-2002

AGE GROUP	PERCENT OF BURNS THAT WERE WORK-RELATED					^INCIDENCE OF WORK-RELATED BURNS				
	1998	1999	2000	2001	2002	1998	1999	2000	2001	2002
0 - 14	0	0	0	0	0	0	0	0.0	0	0
15 - 19	5	13	20	20	15	2.6	6.5	14.5	38.3	39.5
20 - 24	19	11	17	24	21	8.0	4.8	10.9	29.2	36.1
25 - 34	25	27	20	25	26	6.6	7.6	8.0	20.1	29.2
35 - 44	26	25	20	16	18	6.7	6.8	7.6	12.9	20.6
45 - 54	21	19	18	10	15	7.5	7.1	10.0	10.9	22.2
55 - 64	2	5	2	5	5	1.2	3.3	2.4	12.9	15.2
65 +	2	0	3	0	0	0.8	0	2.4	0	6.25
All Groups	100	100	100	100	100	5.4	5.8	8.1	18.8	26.4

^Age-specific crude incidence rates are calculated per 100,000 population based on Utah's age-specific *total workforce* population for 1998 - 2002. Data Source: Burn injury data was obtained from the Utah Department of Health's, Bureau of Epidemiology from Databases of Hospital Admissions and Discharge Data under the authority of the Utah Injury Reporting Rule (R386-703).

Table 4. Crude incidence rates of work-related burn injury cases, total number of work-related burns, total number of burns, and percent of total number of burns in Utah by county during 2002.

BURN INJURIES IN UTAH BY COUNTY, 2002									
COUNTY	**^Incidence of WRB**	**Number of WRB**	**Total Number of Burns**	**% of Total Work-related Burns**	**COUNTY**	**^Incidence of WRB**	**Number of WRB**	**Total Number of Burns**	**% of Total Work-related Burns**
Beaver	41.3	1	2	0.3	Piute	0	0	1	0.0
Box Elder	98.7	17	53	5.8	Rich	0	0	0	0.0
Cache	4.4	2	3	0.7	Salt Lake	20.1	97	504	33.1
Carbon	146.8	13	55	4.4	San Juan	0	0	4	0.0
Daggett	0	0	0	0.0	Sanpete	116.7	10	24	3.4
Davis	33.1	39	146	13.3	Sevier	0	0	7	0.0
Duchesne	100.1	6	10	2.1	Summit	6.6	1	4	0.3
Emery	197.5	7	8	2.4	Tooele	39.2	5	15	1.7
Garfield	0	0	4	0.0	Uintah	179.3	21	114	7.2
Grand	118.4	6	16	2.1	Utah	19.9	34	152	11.6
Iron	13.3	2	5	0.7	Wasatch	0	0	2	0.0
Juab	136.0	5	12	1.7	Wash.	0	0	7	0.0
Kane	0	0	0	0.0	Wayne	0	0	0	0.0
Millard	43.3	2	3	0.7	Weber	24.7	25	138	8.5
Morgan	0	0	8	0.0	State of Utah	26.4	293	1293	100.0

^Crude incidence rates are calculated per 100,000 population based on specific county's 2002 *total workforce* population.
Data Source: Burn injury data was obtained from the Utah Department of Health's, Bureau of Epidemiology from Databases of Hospital Admissions and Discharge Data under the authority of the Utah Injury Reporting Rule (R386-703). WRB - Work-Related Burns

Table 5. Incidence of work-related burns, total number of workforce population, and percent of state workforce in Utah by county during 2002.

WORKFORCE IN UTAH BY COUNTY, 2002							
COUNTY	**^Incidence of WRB**	**Total Number of Workforce**	**Percent of State Workforce**	**COUNTY**	**^Incidence of WRB**	**Total Number of Workforce**	**Percent of State Workforce**
Beaver	41.3	2,422	0.2	Piute	0	523	0.05
Box Elder	98.7	17,224	1.5	Rich	0	1,032	0.09
Cache	4.4	45,866	4.0	Salt Lake	20.1	482,260	43.8
Carbon	146.8	8,857	0.8	San Juan	0	4,257	0.4
Daggett	0	445	0.04	Sanpete	116.7	8,566	0.8
Davis	33.1	117,947	11.1	Sevier	0	8,305	0.7
Duchesne	100.1	5,991	0.5	Summit	6.6	15,186	1.3
Emery	197.5	3,544	0.4	Tooele	39.2	12,747	1.1
Garfield	0	2,497	0.2	Uintah	179.3	11,714	1.0
Grand	118.4	5,066	0.5	Utah	19.9	170,739	15.5
Iron	13.3	15,053	1.4	Wasatch	0	6,954	0.6
Juab	136.0	3,677	0.3	Wash.	0	43,367	3.6
Kane	0	2,763	0.3	Wayne	0	1,495	0.1
Millard	43.3	4,624	0.4	Weber	24.7	101,170	9.0
Morgan	0	3,656	0.3	State of Utah	26.4	1,107,946	100.0

^Crude incidence rates for counties are calculated per 100,000 population based on Utah's 2002 *total workforce* population.
Data Source: Burn injury data was obtained from the Utah Department of Health's, Bureau of Epidemiology from Databases of Hospital Admissions and Discharge Data under the authority of the Utah Injury Reporting Rule (R386-703).
Data Source: Workforce population was obtained from the Utah Department of Workforce Services, Division of Workforce Information and Payment Services for 2002.
WRB - Work-Related Burns

Appendix B

Summary of 1998 – 2002 Case Questionnaire Data
List of Utah Hospitals Reporting to Utah Department of Health

CASE QUESTIONNAIRE SUMMARY REPORT

Sample Industries of employment of work-related burn cases (from 1998-2002 abstracts):

Commercial Printing	Chemical Manufacturing	Metals Manuf.	Trucking
Electrical Power	Airplane Manufacturing	Industrial Machinery	Restaurant
Food Processing	Steel Mill	Hospital	Forest Service
Mining	Public Golf Course	Natural Gas Service	Oil Field Prod.
Refining	University	Construction	Welding
Electronics	Waste Disposal	Food Service	Fire Fighters
Airlines	Hotel	Public Schools	Railroad

Employment Status:

	Full Time:	Part Time:
1998	93%	7%
1999	82	18
2000	79	21
2001	77	23
2002	75	25

Length of Time in Occupation:

1998 Range 10 to 264 months, with a mean of 10.1 years
1999 Range 1 to 360 months, with a mean of 8.2 years
2000 Range 2 to 456 months, with a mean of 9.4 years
2001 Range 1 to 436 months, with a mean of 6.2 years
2002 Range 1 to 540 months, with a mean of 5.5 years

Length of Time at Position:

1998 Range 5 to 262 months, with a mean of 5.9 years
1999 Range 4 to 360 months, with a mean of 7.6 years
2000 Range 2 to 192 months, with a mean of 4.7 years
2001 Range 1 to 312 months, with a mean of 2.1 years
2002 Range 1 to 76 months, with a mean of 1.4 years

Frequency of Performing Task Associated with Injury:

	1998	1999	2000	2001	2002
Daily for most of the day:	50%	45%	46%	48%	23%
Once weekly:	14	36	30	7	5
Periodically:	28	19	6	33	10
Rare, or never before:	8	0	18	12	8

Demographics of Work-Related Burn Cases:

1998 Age range of 18 to 72 years
1999 Age range of 17 to 61 years
2000 Age range of 15 to 80 years
2001 Age range of 15 to 64 years
2002 Age range of 15 to 72 years.

	1998	1999	2000	2001	2002
Male:	82%	79%	84%	68%	72%
Female:	18%	21%	16%	32%	28%

Education:	1998	1999	2000	2001	2002
Some high school:	7%	20%	27%	8%	5%
High school graduate:	40	30	63	53	21
Two years of college:	40	50	5	32	9
College graduate:	13	0	5	7	8

Language:

1998 All English speaking
1999 73% English speaking
9% Spanish speaking
18% Other languages
2000 90% English speaking
10% Spanish speaking
2001 95% English speaking
5% Other languages
2002 All English speaking

Hospitalization Time:

1998 Range of zero to 51 days
1999 Range of zero to 25 days
2000 Range of zero to 41 days
2001 Range of zero to 131 days
2002 Range of zero to 49 days. 80% of stays, 1 night or less.

Days of Work Missed:

1998 Range of zero to permanently
One fatality, two cases injured permanently
1999 Range of zero to 90 days
No fatalities, no permanent injuries
2000 Range zero to 140 days
No fatalities, two cases injured permanently
2001 Range zero to 111 days
One fatality
2002 Range zero to 120 days
No fatalities

Burn Injury Accident

Burn injury could have been prevented (opinion of victim):

	Yes:	No:
1998	83%	17%
1999	87	13
2000	93	7
2001	81	19
2002	68	32

Burn injury occurred as the result of inadequate equipment:

	Yes:	No:
1998	34%	66%
1999	60	40
2000	25	75
2001	16	84
2002	18	82

Employee was aware of written set of safety rules:

	Yes:	No:
1998	64%	36%
1999	83	17
2000	86	14
2001	77	23
2002	79	21

Employer provides personal safety equipment for employees:

	Yes:	No:
1998	86%	14%
1999	80	20
2000	77	23
2001	63	37
2002	80	20

Frequency of safety training sessions:	1998	1999	2000	2001	2002
Infrequent or irregular:	36%	33%	0%	16%	4%
Weekly:	14	0	29	20	8
Monthly:	14	33	43	32	39
Biannually:	14	0	14	16	30
None:	22	33	14	16	19

Location of burn injury event:	1998	1999	2000	2001	2002
Outside of enclosure:	25%	11%	28%	24%	18%
Inside of enclosure:	75%	89%	72%	76%	82%

Day of week of occurrence:	1998	1999	2000	2001	2002
Sunday:	7%	14%	11%	8%	13%
Monday:	21	13	18	17	15
Tuesday:	14	13	13	14	16
Wednesday:	7	13	22	12	16
Thursday:	16	22	14	16	16

Friday:	14	14	14	18	14
Saturday:	21	11	8	15	10

Time of day of occurrence

	1998	1999	2000	2001	2002
Day shift (7-3:00):	60%	69%	55%	48%	40%
Swing Shift (3-11):	33	13	35	44	56
Graveyard Shift (11-7):	7	18	10	8	4

Month of the Year

	1998	1999	2000	2001	2002
January	11%	10%	17%	7%	6%
February	1	3	9	8	6
March	7	14	11	10	11
April	13	3	6	14	7
May	11	3	13	7	9
June	9	5	4	12	6
July	7	8	7	6	13
August	7	9	9	12	13
September	7	6	2	8	11
October	7	19	6	7	7
November	1	13	8	4	6
December	19	8	8	5	5

Number of workers injured per incident:

1998	1 worker (85% of responders)
	More than 1 worker (15% of responders)
1999	1 worker (100% of responders)
2000	1 worker (89% of responders)
	More than 1 worker(11% of responders)
2001	1 worker (90% of responders)
	More than 1 worker (10% of responders)
2002	1 workers (99% of responders)
	More than 1 worker (1% of responders)

Source of Burns	1998	1999	2000	2001	2002
Thermal Source	67%	68%	73%	72%	78%
Chemical Source	23	17	14	19	14

Electrical Source	10	15	13	9	8

Degree of Work-related Burns	1998	1999	2000	2001	2002
1st Degree Burn	9%	21%	20%	19%	22%
2nd Degree Burn	67	55	61	65	68
3rd Degree Burn	24	24	19	16	10

UTAH HOSPITAL REPORTING NETWORK

Allen Memorial Hospital
Alta View Hospital
American Fork Hospital
Bear River Valley Hospital
Beaver Valley Hospital
Central Valley Medical Center
Ashley Valley Medical Center
Brigham City Community Hospital
Castleview Hospital
Lakeview Hospital
Mountain View Hospital
Ogden Regional Hospital
St. Marks Hospital
Cottonwood Hospital
Davis Hospital
Delta Community Hospital
Dixie Regional Medical Center
Fillmore Community Hospital
Garfield Memorial Hospital
Gunnison Valley Hospital
University of Utah Intermountain Burn Center
Kane County Hospital
LDS Hospital
Logan Regional Hospital
McKay-Dee Hospital
Milford Valley Memorial Hospital
Monument Valley Hospital
Orem Community Hospital
Pioneer Valley Hospital
Jordan Valley Hospital
Primary Childrens Medical Center
Salt Lake Regional Hospital
San Juan Hospital
Sanpete Valley Hospital
Sevier Valley Hospital
Tooele Valley Regional Hospital
Uintah Basin Hospital
Utah Valley Regional Medical Center